**Design Challenge**

**Students (in groups of two) will design a briefcase that can be transformed into a chair (and vice versa) constructed with only using cardboard. The briefcase must have dimensions no bigger than (1metre x 30centimetres x 1 metre—length x width x height) and be able to transport a laptop securely. The chair must be strong enough to hold the weight of the one of the designers.**

**Permitted Building Materials: Cardboard**

**Other materials needed:**

**Cutting instruments (scissors)**

**Measuring instruments (rulers)**

**Writing instruments (pencils, pens, markers)**

**Students will be provided with cardboard boxes. Students are to use their own writing, cutting and writing instruments.**

**To be submitted (see rubrics for further details):**

1. **A Briefcase/Chair**
2. **A Group Design Report**

**The group design report must include:**

* **Group name and logo**
* **A progress report (timeline from start to finish which includes dates, set goals, and brief daily descriptions of accomplished tasks)**
* **A blueprint of the briefcase and chair (a top view, side view, and front view) including all measurements and scale**

1. **The Design Project Rubric Hand out**
2. **The group will also create a 30-second video of their briefcase chair—see MYP Technology Rubric**

Briefcase/Chair Rubric: Criterion A

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| **Achievement Level** | **Descriptor** | **Task Specific** |
| **0** | The student does not reach a standard described by any of the descriptors given below. | -the student made no attempt to reach any of the task specific goals indicated below |
| **1–2** | The student **attempts** to make deductions when solving **simple** problems in **familiar** contexts. | -the blue prints are missing a scale and the majority of measurements are not included  -the blue prints are missing units  -the blue prints include at least one of the three views of the briefcase and chair  -the appearance and design are common, and there is no creative element |
| **3–4** | The student **sometimes** makes **appropriate** deductions when solving **simple and more-complex** problems in **familiar** contexts. | -some of the blue prints of the briefcase and chair are to scale and include some measurements  -some of the blue prints include the appropriate units  -the blue prints include at least two of the three views of the briefcase and chair  -the appearance and design of the briefcase or chair has one thing that is unique, and has a creative element but not functional |
| **5–6** | The student **generally** makes **appropriate** deductions when solving **challenging** problems in a **variety** of **familiar** contexts. | -the blue prints of the briefcase and chair are generally to scale and generally include all appropriate measurements  -the blue prints generally include all appropriate units  -the blue prints generally include accurate front, side, and back views of the briefcase and chair  -the appearance and design of the briefcase and chair has one thing that is unique, and the creative element is functional but has some problems |
| **7–8** | The student **consistently** makes **appropriate** deductions when solving **challenging** problems in a **variety** of contexts including **unfamiliar** situations. | -the blue prints of the briefcase and chair are to scale and include all appropriate measurements  -the blue prints include all appropriate units  -the blue prints include accurate front, side, and back views of the briefcase and chair  -the appearance and design of the briefcase and chair are unique and the creative element also adds functionality |

Teacher Comments:

Approaches to Learning Rubric

|  |  |  |  |  |  |  |
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|  | | **AOC**  **1** | **Sometimes**  **2** | **Usually**  **3** | **Consistently**  **4** | **Score** |
| **Peer (collaboration) assessment:** | | | | | | |
| **Fulfill Team Role’s Duties** | | Does not perform any duties of assigned team role. | Performs very little duties | Performs nearly all duties. | Performs all duties of assigned team role. |  |
| **Work Ethic** | | Always relies on others to do the work. | Rarely does the assigned work--often needs reminding | Usually does the assigned work--rarely needs reminding. | Always does the assigned work without having to be reminded |  |
| **Listen to Other Teammates** | | Is always talking--never allows anyone else to speak. | Usually doing most of the talking--rarely allows others to speak. | Listens, but sometimes talks too much. | Listens and speaks a fair amount. |  |
| **Cooperate with Teammates** | | Usually argues with teammates | Sometimes argues | Rarely argues | Never argues with teammates |  |
| **Make Fair Decisions** | | Usually wants to have things their way | Often sides with friends instead of considering all views | Usually considers all views | Always helps team to reach a fair decision |  |
| **TOTAL** | | | | | |  |
|  | **AOC**  **1** | | **Sometimes**  **2** | **Usually**  **3** | **Consistently**  **4** | **Score** |
| **Peer (organization) assessment:** | | | | | | |
| **Identifying and framing project objectives** | | Project objectives are either absent, poorly formulated, or not relevant to the group’s goals. | Identifies and formulates some of the project objectives which will address the group’s goals. | Identifies and formulates most of the project objectives which will address the group’s goals | Identifies and formulates project objectives that are clearly relevant to the group’s goals. |  |
| **Initial identification of necessary tasks and actions** | | No attempt is made to identify and categorize necessary tasks. | Identifies some major tasks needed to reach objectives. | Identifies major tasks needed to reach objectives. Most of the report is detailed and complete. | Identifies major tasks needed to reach objectives. The report is detailed and complete and the tasks are well-defined. |  |
|  | | **AOC**  **1** | **Sometimes**  **2** | **Usually**  **3** | **Consistently**  **4** | **Score** |
| **Development of timeline** | | Does not provide a timeline. | Provides an expected timeline for some tasks | Provides an expected timeline for most tasks | Provides a complete timeline with realistic estimates of times needed to complete tasks |  |
| **Identifying intermediate design objectives** | | All project objectives are treated as single tasks. No attempt appears to be made to break activities into manageable pieces | Makes some attempt to divide larger tasks into smaller activities and to identify necessary steps and intermediate objectives in order to reach main objectives. | Divides most larger tasks into smaller activities and mostly identifies the necessary steps and intermediate objective in order to reach main objectives | Provides a strategy for achieving the more difficult objectives. Divides larger tasks into smaller tasks with intermediate objectives. Simpler ones are managed as a single task. |  |
| **Working out design solution** | | Tasks are listed but in a somewhat random way with no clear evidence of progression from one task to the next. No special attention paid to time-critical tasks or scheduling. | Works out a list of some tasks or steps needed to reach a solution. Demonstrates some understanding that particular tasks may be time-critical and considers how to schedule tasks. | Works out a list of most tasks and steps needed to reach a solution. Mostly demonstrates understanding that particular tasks may be time-critical and considers how to schedule tasks | Works out a systematic and detailed list of tasks or steps needed to reach a solution, with a logical progression from one to the next. Attention is paid to any time-critical tasks, and a schedule for tasks is provided. |  |
| **Organizing and managing** | | Work appears to be performed at odd hours and during infrequent spurts of activity | Sometimes demonstrates an organized approach with regular work habits | Usually demonstrates an organized approach with regular work habits | Is well organized with project tasks and objectives clearly specified and with work progressing regularly and methodically |  |
| **TOTAL** | | | | | |  |
|  | | **AOC**  **1** | **Sometimes**  **2** | **Usually**  **3** | **Consistently**  **4** | **Score** |
| **Personal Reflection Assessment** | | | | | | |
| **Conducting ongoing evaluation and reflection** | | Rarely or never modifies project tasks and/or intermediate objectives. | Sometimes, modifies project tasks and/or intermediate objectives in view of progress made. | For the most part, modifies project tasks and/or intermediate objectives in view of progress made. | Consistently considers modification of project tasks and/or intermediate objectives in view of progress made during project |  |
| **TOTAL** | | | | | |  |

How did I best organize myself?

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How do I best organize tasks?

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What aspects of my organization do I need to develop?

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**MYP Technology Rubric Criterion D**

**Assessment Name**: Chair-Briefcase Challenge (30 second advertisement video)

**Student’s Name**:

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| **Achievement**  **Level** | **Level Descriptor** | **Task Specific Clarification** |
| **0** | The student does not reach a standard described by any of the descriptors given below. | |
| **1-2** | The student considers the plan and creates at least **part** of a product/ solution. | **Information**  -advertisement has a weak/or no slogan and presents some information  **Technical**  -video is poor in quality, sound is hard to hear, poor lighting and poor editing  -video has bland colours and little or no graphics  -advertisement is ±15sec of 30 seconds  **Creativity**  -advertisement is somewhat creative  -advertisement attempts to ‘hook’ the audience  -product is demonstrated in a somewhat creative manner |
| **3-4** | The student **uses** appropriate techniques and equipment. The student follows the plan and **mentions** any modifications made, resulting in a product/solution of **good** quality. | **Information**  -advertisement has a slogan and presents relevant information  **Technical**  -video quality is good, sound quality is good, and has good lighting, editing is of good quality  -video uses good colours and graphics  -advertisement is ±10sec of 30 seconds  **Creativity**  -advertisement is creative  -advertisement ‘hooks’ the audience  -product is demonstrated in a creative manner |
| **5-6** | The student **competently uses** appropriate techniques and equipment. The student follows the plan and **justifies** any modifications made, resulting in a product/solution of **appropriate** quality using the resources available. | **Information**  -advertisement has a ‘catchy’ slogan and presents relevant information is a ‘catchy’ manner  **Technical**  -video quality is high, has excellent sound quality and lighting, editing is of high quality  -video uses appealing colours and graphics  -advertisement is 30 seconds  **Creativity**  -advertisement is highly creative  -advertisement presents a special feature to ‘hook’ the audience  -product is demonstrated in a highly creative manner |